In the Claims

1. (Previously Presented) A method of MR data acquisition comprising the steps of:

sampling peripheral regions of k-space at a pre-selected temporal rate;

waiting a predetermined period of time before sampling a next region of k-space if the next region of k-space is a center region of k-space, wherein the center region is sampled at a higher temporal rate and wherein the predetermined period of time is a function of peripheral region distance from the center region of k-space; otherwise

sampling the next region of k-space at the pre-selected temporal rate.

2. (Canceled)

3. (Previously Presented) The method of claim 1 further comprising the step of increasing the predetermined period of time as the peripheral region distance from the center region of k-space increases.

4. (Original) The method of claim 1 further comprising the step of maintaining steady state of the MR signal to minimize signal intensity variation.

5. (Original) The method of claim 1 further comprising the step of playing out a series of zero-encoding pulses during the predetermined period of time.

6. (Original) An MRI apparatus comprising:

a magnetic resonance imaging (MRI) system having a plurality of gradient coils positioned about a bore of a magnet to impress a polarizing magnetic field and an RF transceiver system and an RF switch controlled by a pulse module to transmit RF signals to an RF coil assembly to acquire MR images; and

a computer programmed to:

segment k-space into a center region and a number of peripheral regions;

determine a distance of each peripheral region from the center region;

sample an MR signal to fill the center region at a faster sampling rate than used to sample each peripheral region; and

delay sampling of the MR signal to fill the center region as a function of the distance of an immediately preceding sampled peripheral region from the center region.

7. (Original) The MRI apparatus of claim 6 wherein the computer is further programmed to increase the delay in sampling as the distance of the immediately preceding sampled peripheral region from the center region increases.

8. (Previously Presented) The MRI apparatus of claim 7 wherein the increase in delay is a linear increase in delay time.

9. (Currently Amended) The MRI apparatus of claim 8 wherein delay time ~~after sampling a first peripheral region is a multiple of that observed after sampling of a second peripheral region~~ observed after sampling of a second peripheral region is a multiple of that after sampling a first peripheral region.

10. (Original) The MRI apparatus of claim 6 wherein the computer is further programmed to play out a series of approximately zero-encoding pulses along one of a slice selective axis and phase-encoding axis during the delay in sampling.

11. (Original) The MRI apparatus of claim 6 wherein a first peripheral region is closer to the center region than a next peripheral region.

12. (Previously Presented) The MRI apparatus of claim 10 wherein amplitude of one of the zero-encoding pulses along the phase-encoding axis and the zero-encoding pulses along the slice-selective axis increases as the distance of each peripheral region from the center region increases.

13. (Original) The MRI apparatus of claim 6 wherein the computer is further programmed to acquire 3D volumetric data during passage of an intra-vascular contrast agent through a patient.

14. (Original) A computer readable storage medium having stored thereon a computer program to reduce image intensity variation during MR data acquisition, the computer program including a set of instructions that when executed by a processor causes the processor to:

partition k-space into a plurality of partitions wherein one partition corresponds to a center of k-space and the other partitions correspond to peripheral regions of k-space;

determine a distance from the center of k-space for each peripheral region; and

delay the sampling of the center k-space by a predetermined value that is a function of the distance an immediately preceding sampled peripheral region is from the center of k-space.

15. (Original) The computer readable storage medium of claim 14 wherein the set of instructions further causes the processor to play out a number of minimal-encoding pulses prior to the sampling of the center of k-space.

16. (Original) The computer readable storage medium of claim 15 wherein the number of zero-encoding pulses played out prior to sampling of the center of k-space increases as the distance from the center of k-space an immediately preceding peripheral region of k-space increases.

17. (Original) The computer readable storage medium of claim 16 wherein the number of zero-encoding pulses varies linearly as a function of distance of data acquisition from the center of k-space.

18. (Original) The computer readable storage medium of claim 15 wherein a length of each zero-encoding pulse causes a delay in acquisition before the center of k-space sufficient to cause a disruption to steady-state dynamics of transverse magnetization.

19. (Original) The computer readable storage medium of claim 15 wherein each minimal-encoding pulse has a zero amplitude.

20. (Original) The computer readable storage medium of claim 15 wherein each zero-encoding pulse is one of a slice selective gradient pulse and a phase-encoding gradient pulse.

21. (Original) The computer readable storage medium of claim 14 wherein the set of instructions further causes the processor to sample the center of k-space at a faster rate than each peripheral region.